

#### ABSTRACT

A midsole insert for use with a shoe is provided. The midsole insert includes a heel portion, a midfoot portion, and a forefoot portion, and a plurality of grid systems located on the midsole insert, where each grid system includes a plurality of openings cut into the midsole insert forming a lattice pattern. The plurality of grids may be located on at least one of the heel portion, the midfoot portion, and the forefoot portion, constructed to provide energy return features. The midsole may further be constructed and arranged to attach directly to an upper during a manufacturing step, to secure the shape of the upper on a last. By attaching directly to the upper, the midsole insert eliminates the need for a stroble board, which is typically used to secure the upper to the last. By eliminating the stroble board, the present invention places the midsole insert and the energy return grid system closer to the foot, which maximizes reaction time and performance. The midsole insert may be formed of at least two materials having different hardnesses, such that the heel portion has a greater hardness than the forefoot portion.